DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER PROTECTION BUREAU
Metcalf Building, Helena, Montana 59620
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ENVIRONMENTAL ASSESSMENT (EA)

Division/Bureau: Permitting & Compliance Division, MGWPCS Permits;

Project or Application: RAE Subdivision County Water and Sewer District No. 313; MTX000117

Description of Project: The permit renewal authorizes the discharge of treated residential-strength domestic wastewater from the RAE Subdivision County Water and Sewer District No. 313 (RWSD), which is a publicly-owned wastewater treatment works (POTW) that collects, treats, and disposes of an average daily design flow of 200,000 gallons per day (gpd) of effluent from a maximum of 1,000 single-family lots. One lot is currently occupied by a commercial business that discharges domestic wastewater to the treatment system. RWSD is located approximately two miles southwest of Bozeman. Raw waste and wastewater is collected via a gravity sewer collection system that flows to a lift station. At the headworks of the wastewater treatment plant, a bar screen separates the solid waste material out of the waste stream prior to receiving advanced, biological nutrient-removal in an activated sludge treatment system specifically, a sequencing batch reactor (SBR) developed by Aqua-Aerobic Systems, Inc. The effluent receives ultra violet (UV) disinfection prior to being discharged to three infiltration galleries consisting of high capacity infiltrator assemblies over washed-rock above a native layer of clean gravel. The sludge goes to the aerobic digester (20 to 30 days) and is discharged to lined (with an underdrain) reed beds. A source specific 365-foot ground water mixing zone is requested for Outfall 001. Four ground water monitoring wells delineate the hydraulically downgradient boundary of the mixing zone. The location of Outfall 001 is 45° 40' 8" North Latitude and 111° 7' 15" West Longitude. Discharge is to ground water, which is classified "Class I" by the Montana Ground Water Quality Standards.

Benefits and Purpose of Proposal:
Adequate treatment of residential-strength wastewater before discharging to ground water.
Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider:
None
Listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by this or another government agency:
See Statement of Basis

Affected Environment and Effects from the Proposed Project:

Key to Rank	
NA	*Not applicable*
N	*No effects*
B	*Potentially beneficial effect*A *Potentially adverse effects*
M	*Corrective action required*
P	*Additional permits will be required*

Rank	Consideration	Remarks
	PHYSICAL AND BIOLOGICAL ENVIRONMENT	
N	1. SOIL SUITABILITY, TOPOGRAPHIC AND/OR GEOLOGIC CONSTRAINTS (soil moisture, unstable soils or geologic conditions, steep slopes, erosion potential, subsidence potential, seismic activity)	Discharge will increase moisture in the unsaturated zone. No low permeability layers exit between the infiltration galleries and the shallow ground water. There are no known unique geological features at the site. There is no indication following 5 years of permitted discharge that the site of the wastewater treatment system has become unstable due to the

			construction and/or the operation of the system.
N	2.	HAZARDOUS FACILITIES (power lines, hazardous waste sites, distances from explosive and flammable hazards including chemical/petroleum storage tanks, underground fuel storage tanks and related facilities such as natural gas storage facilities and propane tanks)	
N	3.	AIR QUALITY (effects to or from project, dust, odors, emissions)	No significant impacts have been determined.
N	4.	GROUNDWATER RESOURCES & AQUIFERS (quality/nondegradation, quantity/reliability, distribution, uses/rights, number of aquifers, mixing zones)	There will be no significant degradation outside of the mixing zone for Outfall 001 (see Statement of Basis for details and calculations). The quality of the shallow ground water shall continue to be monitored for the permit renewal.
N	5.	SURFACE WATER RESOURCES (quality/nondegradation, quantity/reliability, distribution, uses/rights, storm water controls, source of community supply, community treatment, mixing zones)	The nearest hydraulically downgradient (N20°W) surface water from Outfall 001 is an unlined gravel pit, located approximately 2,620 feet from the outfall. Impacts to surface waters were determined non-significant (see Statement of Basis for details and calculations).
N	6.	VEGETATION AND WILDLIFE SPECIES AND HABITATS, INCLUDING FISHERIES AND AQUATIC RESOURCES (threatened, endangered, sensitive species, prime habitat, population stability, potential for human wildlife conflicts, effectiveness of post-disturbance plans)	Lined reed beds for sludge storage may provide natural wetland-type habitat. Sludge is dried and used onsite as compost.
N	7.	UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES (biologic, topographic, wetlands (within one mile), floodplains (within one mile), scenic rivers, natural resource areas, etc.)	
N	8.	LAND USE (waste disposal, agricultural lands [grazing, cropland, forest lands, prime farmland], recreational lands [waterways, parks, playgrounds, open space, federal lands), access, commercial and industrial facilities [production & activity, growth or decline], growth, land-use change, development activity)	
N	9.	HISTORICAL, CULTURAL, & ARCHEOLOGICAL (sites, facilities, uniqueness, diversity)	No new construction is associated with this permit renewal.
N	10.	AESTHETICS (visual quality, nuisances, odors, noise)	The SBR treatment equipment is constructed partially below ground and housed beneath a greenhouse-type building. Blowers and UV disinfection have separate buildings. Effluent from Outfall 001 is discharged to three subsurface infiltration galleries. There are no known aesthetic issues.
N	11.	DEMANDS ON OR CHANGES IN ENVIRONMENTAL RESOURCES INCLUDING LAND, WATER, AIR, OR ENERGY USE (need for new or upgraded energy sources, potential for recycling, etc.) {See (4), (5), and (8).}	Potable water will is provided via four onsite community supply wells that range in depth from 90 to 141 feet deep.

Rank	Consideration		Remarks
IMPACTS ON THE HUMAN POPULATION			
NA	12.	CHANGES IN DEMOGRAPHIC CHARACTERISTICS (population quantity, distribution and density, rate of change)	No changes in the facility are associated with this permit renewal.
N	13.	GENERAL HOUSING CONDITIONS (quality, quantity and affordability)	This development currently consists of single-family lots and a commercial lot, all of which discharge domestic wastewater to the treatment system.
NA	14.	POTENTIAL FOR DISPLACEMENT OR RELOCATION OF BUSINESS OR RESIDENTS	
N	15.	PUBLIC HEALTH AND SAFETY (medical services and facilities, police, fire protection and hazards [see (2)], emergency medical services [see (8), LAND USE for waste disposal])	
N	16.	LOCAL EMPLOYMENT AND INCOME PATTERNS (quantity and distribution of employment, economic impact)	
NA	17.	LOCAL AND STATE TAX BASE AND REVENUES	
NA	18.	EFFECTS ON SOCIAL STRUCTURES AND MORES (social conventions/standards of social conduct), DEMANDS ON SOCIAL SERVICES (law enforcement, educational facilities [libraries, schools, colleges, universities], welfare, etc.)	
N	19.	TRANSPORTATION NETWORK (condition and use of roads, traffic flow conflicts, rail, airport compatibility, etc.)	
N	20.	CONSISTENCY WITH LOCAL ORDINANCES, RESOLUTIONS, OR PLANS (conformance with local comprehensive plans, zoning or capital improvement plans)	This wastewater treatment facility was constructed in response to a Department Administrative Order requiring clean up by the applicant.
NA	21.	REGULATORY RESTRICTIONS ON PRIVATE PROPERTY RIGHTS (*Are we regulating pursuant to a police power? Does the Agency action restrict the use of the property beyond the minimum necessary to achieve compliance with the Act? What are the costs of such additional restrictions resulting from proposed permit conditions? Are there other, less restrictive ways of achieving the same goal?* See your assigned legal counsel for assistance preparing this section. [See the Private Property Assessment Act checklist accompanying this permit for details.]	

Other groups or governmental agencies contacted or which may have overlapping jurisdiction:

Public Water Supply, Subdivisions Bureau

Public Involvement:
Thirty-day public comment period

Individuals or groups contributing to this EA:
State Revolving Fund (SRF)

Summary of Issues:
See Statement of Basis

Summary of Potential Effects:
See Statement of Basis

Cumulative Effects:
There are no unresolved analyses for cumulative effects.

Recommendation:
Issue Ground Water Discharge permit

Recommendation for Further Environmental Analysis:

☐ Prepare an EIS ☐ Prepare a more detailed EA ☒ No further analysis

EA prepared by: Pat Potts Date: October 22, 2008

Bureau Check-off

AWMB	_____	CSB	_____	EMB	_____
IEMB	_____	WPB	_____	Other	_____

Approved by:

Jenny Chambers, Bureau Chief
Water Protection Bureau
Permitting & Compliance Division

_____
(Print name and title)

_____ _____
(Signature) (Date)